



Ducab Flam BICC 

**FIRE
RESISTANT
CABLES**





INTRODUCTION

Ducab Flam BICC 1 is Fire Resistant Single Core cable with approval from Loss Prevention Certification Board, UK for the use in emergency safety circuits to maintain circuit integrity under fire conditions.

These cables are certified by LPCB as fire resistant on the basis of successful fire resistance tests carried out in their laboratory. For smaller sizes which can fit in a conduit, C-W-Z tests of BS 6387 are carried out whereas for large size cables a fire resistance test as per IEC 60331-21 is carried out at an enhanced temperature of 950°C. The applied voltage during the fire testing is based on the 600/1000 volts system.

The **Ducab Flam BICC 1** cables are designed for laying in metallic conduit or in cable trunking where electrical circuit integrity under fire circumstances is of paramount importance. These cables are designed with special materials which ensure very low smoke and zero halogen in the event of a fire. The low smoke generation gives better visibility in a fire situation aiding the rescue operation and enabling the EXIT path to be seen clearly for escape. As there is no halogen or acidic gas emission during burning of the cable, the sensitive equipments in the surrounding areas are not affected adversely.

These cables employ primary insulation of Mica Glass fire resistant tape along with the secondary insulation of Cross Linked Low Smoke and Fume (XL-LSF) material. This cable has an operating temperature of 90°C. The cable is suitable for installation in accordance with BS 7671 – IEE wiring regulations.

Ducab's Quality Management System is certified to ISO 9001 by BASEC.



BS 6387 fire testing in progress at Ducab

CONSTRUCTION

1. Copper conductor: Plain annealed stranded class 2 conductor to BS EN 60228
2. Primary Insulation: Mica Glass tape
3. Secondary Insulation: Extruded XL-LSF compound

PERFORMANCE CHARACTERISTICS

- Fire Resistance: C-W-Z test as per BS 6387 for small sizes and IEC 60331-21 for large sizes which cannot fit in a conduit.
- Acid gas emission: Less than 0.5 % when tested to IEC 60754 & BS EN 50267
- Low smoke emission: As per IEC 61034 & BS EN 50268
- Cables comply to IEC 60331-21 fire test at increased temperature of 950°C, which is higher than that specified by the standard.



Introduction:

Ducab Flam BICC 2 cables are fire resistant screened cables having low emission of smoke and corrosive gases when affected by fire.

These cables are certified with LPCB approval.

Construction:

Conductor: Plain annealed copper conductor complying with BS EN 60228, class 1 or class 2

Insulation: Special insulation to meet fire resistance characteristics

Screen: Laminated Aluminium tape screen in contact with full size tinned annealed copper circuit protective conductor

Sheath: Robust LSF (LSHF / LSOH) sheath



Cable Description:	Pliable Fire Resistant screened cables having low emission of smoke and corrosive gases when affected by fire. BSEN50200 : 2000 Class PH30.
Approvals:	LPCB Approval to BS 7629-1, BS 5839-1 and BS EN 50200 Class PH30
Voltage grade	300/500 V
Colours:	White or Red Sheath are standard, other colours available on request.
Packaging	100 meter reels: Other packaging and lengths available on request.
Key Applications:	The use of cables with 'standard' fire resistance is recommended for general use for fire detection, voice alarm, addressable system and emergency lighting.
Salient features	Highly durable, easy to terminate



INTRODUCTION

Ducab Flam BICC 3 is a Fire Resistant Single Core cable with a Low Smoke Zero Halogen (LSOH) outer sheath designed for the use in emergency safety circuits to maintain circuit integrity under fire conditions.

These cables are classified fire resistant on the basis of successful fire resistance tests. For smaller sizes which can fit in a conduit, C-W-Z tests of BS 6387 are carried out whereas for large size cables, fire resistance test as per IEC 60331-21 at an enhanced temperature of 950°C has been met. The applied test voltage during the fire testing is based on the 600/1000 volts system.

The **Ducab Flam BICC 3** cables are designed for laying on a ladder, clipped direct or in cable trays where fire can cause a major hazard for the essential circuits. These cables are suitable for indoor or outdoor applications and are used where electrical circuit integrity under fire circumstances is of paramount importance. Also, these cables are designed with special materials which ensure very low smoke and practically zero halogen to help the rescue operation and protect the costly & sensitive equipments. Due to low smoke generation during a fire, the ‘EXIT’ path can be seen clearly for escape. As there is no halogen or acidic gas emission during burning of the cable, the resulting damage to sensitive electronic equipment is reduced.

These cables employ a primary insulation of Mica Glass fire resistant tape along with the secondary insulation of Cross Linked Poly Ethylene (XLPE/XL-LSF) material followed by LSOH outer sheath. These cables operate up to a temperature of 90°C. The cable is suitable for in tray, ladder, trunking & clipped direct installation in accordance with BS 7671 – IEE wiring regulations.

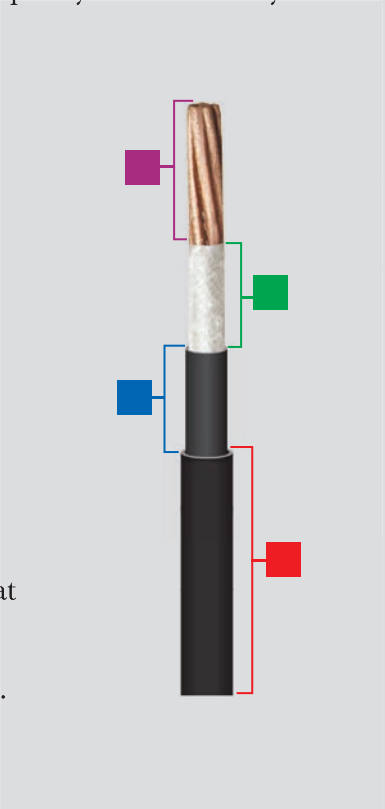
Ducab’s Business Management Systems is certified to ISO 9001, ISO 14001 and OHSAS 18001 by BASEC. This ensures that all the products manufactured by Ducab are of the best quality in the industry.

CONSTRUCTION

- Copper conductor: Plain annealed stranded class 2 conductor to BS EN 60228
- Primary Insulation: Mica Glass tape
- Secondary Insulation: Extruded XLPE/XL-LSF compound
- Outer sheath: LSOH compound

PERFORMANCE CHARACTERISTICS

- Fire Resistance: C-W-Z test as per BS 6387 for small sizes and IEC 60331-21 at enhanced temperature of 950 C for large sizes which cannot fit in a conduit.
- Acid gas emission: Less than 0.5 % when tested to IEC 60754 & BS EN 50267.
- Low smoke emission: As per IEC 61034 & BS EN 50268.





INTRODUCTION

Ducab Flam BICC 4 cables are fire resistant armoured cables intended for applications requiring circuit integrity during a fire. Since these cables are used in critical applications, the approval process and certification are vital to ensure necessary performance.

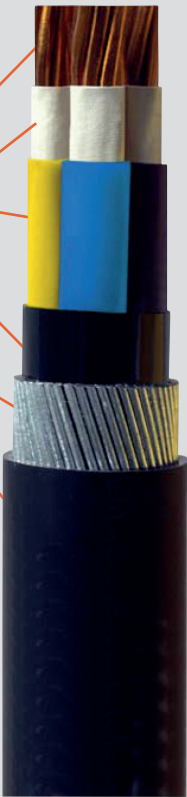
Ducab Flam BICC 4 cables comply with BS 7846 category F1 and F2 and are LPCB (Loss Prevention Certification Board) approved to the full British Standard. Ducab has taken the view that using LPCB to approve only the basic fire tests such as CWZ and F2 classifications is not sufficient. By seeking full BS7846 approval from LPCB Ducab has proved that it is committed to go beyond these tests and deliver a superior product with approved materials and manufacturing processes, as well as regular independent assessment and product testing. This ongoing commitment to quality is one of the reasons why our customers have complete faith in Ducab products.

In addition to maintaining circuit integrity under fire conditions, **Ducab Flam BICC 4** cables generate very low smoke and are Halogen free in accordance with BS7846, thus helping to save human life and provide protection for the sensitive equipment.

Ducab Flam BICC 4 cables also have type approval for the complete range by Lloyd's Register, UK.

CONSTRUCTION

1. Copper conductor
2. Dual insulation - Mica glass - XLPE
3. Bedding (Low Smoke & Fume. Also known as Low Smoke Zero Halogen - LSOH)
4. Galvanised steel wire armoured
5. LSOH outer sheath



KEY FIRE PERFORMANCE REQUIREMENTS

BS 7846 **Ducab Flam BICC 4** cable is designed to meet:

1. Flammability: IEC 60332-1 and IEC 60332-3 categories A, B & C.
2. Resistance to fire: C-W-Z of BS: 6387, IEC: 60331 and F-2 of BS: 7846
3. Smoke Emission: IEC 61034 - 1 & 2
4. Acid Gas Content: IEC 60754 - 1 & 2, BSEN 50267- 1 & 2

CORE IDENTIFICATIONS

DucabFlamBICC




Green/Yellow


Blue


Red


Brown



Black


Grey



White

(Other colours as per request)

DucabFlamBICC



CORE COLOUR:

 Black (Other colours as per request)

SHEATH COLOUR:

Black (Other sheath colours as per request)


DucabFlamBICC



STANDARD


Red-Black


Red-Yellow-Blue


Red-Yellow-Blue-Black

ALTERNATIVE*


Brown-Blue


Brown-Black-Grey


Blue-Brown-Black-Grey

*Available on special orders.

No. of Cores	2	2	2	2	3	3	3	4	4	4
Conductor Area (mm ²)	1	1.5	2.5	4	1	1.5	2.5	1	1.5	2.5
No. of Wires	1	1	7	7	1	1	7	1	1	7
Nom Diameter of Conductor / wire (mm)	1.13	1.37	0.67	0.85	1.13	1.37	0.67	1.13	1.37	0.67
Nom Insulation Thickness (mm)	0.6	0.7	0.8	0.8	0.6	0.7	0.8	0.6	0.7	0.8
Nom O.D. (mm)	8.05	8.4	10.05	11.4	8.55	9.15	11.15	9.2	10.2	11.65
Min Bending Radius (mm)	50	60	70	80	60	70	80	60	70	80
Approx Cable Weight (kg/km)	79.8	98.3	146.4	213.5	93.6	121	178.8	120.1	148.2	210.7
Max Conductor Resistance 20° C (ohm/km)	18.1	12.1	7.41	4.61	18.1	12.1	7.41	18.1	12.1	7.41
Max Conductor Resistance 70° C (ohm/km)	21.7	14.5	8.8	5.5	21.7	14.5	8.8	21.7	14.5	8.8
Approx Capacitance (Adjacent Cores) (pF/km)	85	95	100	100	85	95	100	85	95	100
Approx Capacitance (Core to Screen) (pF/km)	170	180	190	190	170	180	190	170	180	190

We can offer the cables with new as well as old core colour code as mentioned below.

Colour code	New core colour code	Old core colour code
2 core	Brown, Blue	Red, Black
3 core	Brown, Black, Grey	Red, Yellow, Blue
4 core	Blue, Brown, Black, Grey	Red, Yellow, Blue, Black

AREAS OF APPLICATION FOR FIRE RESISTANT CABLES:

High Rise Buildings



Hospitals



Hotels



Metros & Underground Tunnels



Airports



Ducab - Head Office

P.O. BOX 11529, Jebel Ali, Dubai, United Arab Emirates

Tel: +971 4 815 8888, Fax: +971 4 815 8233

Email: ducab@ducab.com

Website: www.ducab.com